

Amendment

U.S. Patent Application No. 09/905,156

markings to show the changes made is also attached).

4. (Amended) The polyurethane of claim 26, wherein said hydroxyalkanoate is 3 hydroxybutyric acid combined with ethylene glycol, 1, 3 propane diol, 1,2 propane diol, 1,3 butane diol, 1, 4 butane diol, or combinations thereof.

5. (Amended) The polyurethane of claim 26, wherein said hydroxyalkanoate is 3 hydroxybutyric acid combined with polyethylene glycol having from about 1 to about 100 ethylene glycol repeat units.

6. (Amended) The polyurethane of claim 26, wherein said hydroxyalkanoate is a mixture of 3 hydroxybutyric acid and 3 hydroxyvaleric acid combined with ethylene glycol, 1, 3 propane diol, 1,2 propane diol, 1,3 butane diol, 1, 4 butane diol, or combinations thereof.

7. (Amended) The polyurethane of claim 26, wherein said hydroxyalkanoate is a mixture of 3 hydroxybutyric acid and 3 hydroxyvaleric acid combined with polyethylene glycol having from about 1 to about 100 ethylene glycol repeat units.

8. (Amended) The polyurethane of claim 26, wherein said isocyanate containing material is toluene diisocyanate, methylene 4, 4' diphenyl diisocyanate, isophorone diisocyanate, hexamethylene diisocyanate, a combinations thereof.

9. (Amended) The polyurethane of claim 26, wherein the weight ratio of isocyanate groups to hydroxy groups is from 0.5:1 to 2:1.

10. (Amended) The polyurethane of claim 26, wherein the polyurethane is biodegradable.

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11. (Amended) The polyurethane of claim 26, wherein the polyurethane is hydrophilic.

12. (Amended) The polyurethane of claim 26, wherein the polyurethane is hydrophobic.

13. (Amended) The polyurethane of claim 26, wherein the polyurethane is a coating.

14. (Amended) The polyurethane of claim 26, wherein the polyurethane is a flexible foam.

15. (Amended) The polyurethane of claim 26, wherein the polyurethane is a rigid foam.

16. (Amended) The polyurethane of claim 26, wherein the polyurethane is an elastomer.

17. (Amended) The polyurethane of claim 26, wherein the polyurethane is water dispersible.

18. (Amended) The polyurethane of claim 26, wherein the hydroxyalkanoate is a polymer of one or more subunits having the chemical formula:



wherein n is 0 or an integer, and wherein  $\text{R}^1$ ,  $\text{R}^2$ ,  $\text{R}^3$ , and  $\text{R}^4$ , which are the same or different, is selected from saturated and unsaturated hydrocarbon radicals; halo- and hydroxy-substituted radicals; hydroxy radicals; halogen radicals; nitrogen-substituted radicals; oxygen-substituted radicals; or hydrogen atoms.

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*a/*  
19. (Amended) The polyurethane of claim 26, wherein said hydroxyalkanoate is a polymer.

Please add the following new claims.

*a/* 26. A polyurethane obtained by the reaction of at least one product containing at least two isocyanate groups per molecule and at least one compound having at least two hydroxyl groups having different reactivity to the at least two isocyanate groups, wherein the at least one compound includes a thermally decomposable or biodegradable hydroxyalkanoate component.

27. The polyurethane of claim 26, wherein the hydroxyalkanoate has a formula selected from:

*a/*  
a)  $\text{HOCHR}(\text{CH}_2)_y\text{COO}(\text{CH}_2)_n\text{OH}$ ;  
b)  $\text{HOCHR}(\text{CH}_2)_y\text{COO}(\text{CH}_2\text{CHR}'\text{O})_m\text{H}$ ;  
c)  $\text{H}\{\text{OCHR}(\text{CH}_2)_y\text{CO}\}_x\text{O}(\text{CH}_2)_n\text{OH}$ ;  
d)  $\text{H}\{\text{OCHR}(\text{CH}_2)_y\text{CO}\}_x\text{O}(\text{CH}_2\text{CHR}'\text{O})_m\text{H}$ ;  
e)  $\{\text{HOCHR}(\text{CH}_2)_y\text{CO}\}_z\text{B}$ ; or  
f)  $[\text{H}\{\text{OCHR}(\text{CH}_2)_y\text{CO}\}_x]_z\text{B}$ ;

**wherein in formula 2a) and 2c),** R is a saturated alkyl group having from 1 to 16 carbon atoms or an unsaturated alkyl group having from 2 to 16 carbon atoms or mixtures thereof;

**wherein in formula 2b),** when the R is hydrogen, the terminal R' is then methyl, and when the R is a saturated alkyl group having from 1 to 16 carbon atoms or an unsaturated alkyl group having from 2 to 16 carbon atoms or mixtures thereof, the terminal R' is then

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hydrogen;

**wherein in formula 2d)**, the terminal R and the terminal R' are different from each other;  
**wherein in formulas 2d)-2f)**, R is hydrogen, a saturated alkyl group having from 1 to 16 carbon atoms or an unsaturated alkyl group having from 2 to 16 carbon atoms or mixtures thereof, and, **for formulas 2b) and 2d)**, the non-terminal R is hydrogen, a saturated alkyl group having from 1 to 16 carbon atoms or an unsaturated alkyl group having from 2 to 16 carbon atoms or mixtures thereof and the non-terminal R' is hydrogen or methyl, and unless stated otherwise **for all formulas 2a)-2f)**, R is hydrogen, a saturated alkyl group having from 1 to 16 carbon atoms or an unsaturated alkyl group having from 2 to 16 carbon atoms or mixtures thereof, and R' is hydrogen or methyl; m is from 1 to 50; is 0 to 3; x is 2 to 1000; and B is selected from:

trimethylol propane wherein z is 1, 2 or a mixture of 1 and 2,

glycerol wherein z is 1, 2 or a mixture of 1 and 2,

triethanolamine wherein z is 1, 2 or a mixture of 1 and 2, or

sucrose wherein z is 1 to (p-1) where p is the number of free hydroxyl groups

or derivatives present in said compound.

28. The polyurethane of claim 26, wherein the hydroxyalkanoate is an N, N' (bis hydroxyethyl) hydroxyalkanomide.

29. The polyurethane of claim 26, wherein the hydroxyalkanoate is  $H\{OCR^1R^2(CR^3R^4)_nCO\}_mNH(CH_2CH_2OH)_2$ , wherein n is 0 or an integer, and wherein R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, and R<sup>4</sup>, which are the same or different, is selected from saturated and unsaturated hydrocarbon radicals; halo- and hydroxy-substituted radicals; hydroxy radicals; halogen

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radicals; nitrogen-substituted radicals; oxygen-substituted radicals; or hydrogen atoms.

30. The polyurethane of claim 26, wherein the hydroxyalkanoate is  $-\text{OCR}^1\text{R}^2(\text{CR}^3\text{R}^4)_n\text{CONH}$  ester wherein n is 0 or an integer, and wherein  $\text{R}^1$ ,  $\text{R}^2$ ,  $\text{R}^3$ , and  $\text{R}^4$ , which are the same or different, is selected from saturated and unsaturated hydrocarbon radicals; halo- and hydroxy-substituted radicals; hydroxy radicals; halogen radicals; nitrogen-substituted radicals; oxygen-substituted radicals; or hydrogen atoms.

31. The polyurethane of claim 26, wherein the hydroxyalkanoate is  $-\text{OCR}^1\text{R}^2(\text{CR}^3\text{R}^4)_n\text{CON}$  bisalkanol ester, wherein n is 0 or an integer, and wherein  $\text{R}^1$ ,  $\text{R}^2$ ,  $\text{R}^3$ , and  $\text{R}^4$ , which are the same or different, is selected from saturated and unsaturated hydrocarbon radicals; halo- and hydroxy-substituted radicals; hydroxy radicals; halogen radicals; nitrogen-substituted radicals; oxygen-substituted radicals; or hydrogen atoms.

32. The polyurethane of claim 26, wherein the hydroxyalkanoate is  $\text{HOCH}(\text{CH}_3)\text{CH}_2\text{CONH}(\text{CH}_2\text{CH}_2\text{OH})_2$ .

33. The polyurethane of claim 26, wherein the hydroxyalkanoate is a bisalcohol amide of a polyhydroxyalkanoate.

34. The polyurethane of claim 33, wherein the dialcohol amide of a polyhydroxyalkanoate is an N, N' (bis polyoxyethylene) polyhydroxyalkanoate amide.

35. The polyurethane of claim 33, wherein the dialcohol amide of a polyhydroxyalkanoate is an N, N' (bis hydroxyethylene) polyhydroxyamide.

36. The polyurethane of claim 26, wherein the hydroxyalkanoate is  $\text{HOCH}(\text{R}^1)\text{CH}_2\text{CONH}(\text{CH}_2\text{CH}_2\text{OH})_2$ , wherein  $\text{R}^1$  is selected from saturated and unsaturated hydrocarbon radicals; halo- and hydroxy-substituted radicals; hydroxy